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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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10/608,346

06/27/2003

John Erik Lindholm

NVDA/P000575

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02/07/2005

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EXAMINER

MONESTIME, MACKLY

ART UNIT

PAPER NUMBER

2676

DATE MAILED: 02/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/608,346

Applicant(s)

LINDHOLM ET AL.

Examiner

Mackly Monestime

Art Unit

2676

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 January 1935.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-35 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 5-27 is/are allowed.
- 6) ☒ Claim(s) 1-4 and 28-35 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Claims 1-35 are presented for examination.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-4 and 28-35 are rejected under 35 U.S.C. 102(e) as being anticipated by Heirich et al (US Patent No. 6,753,878).
4. As per claims 1, 28, 30-31 and 33-34, Heirich et al disclosed the invention as claimed, including a method of rendering a scene using a graphics processor comprising: configuring a multithreaded processing unit within the graphics processor to enable processing of samples independent of an order in which the samples are received (Abstract, lines 1-6; col. 2, lines 30-37; col. 4, lines 29-32; col. 24, lines 8-15); and processing the samples independent of the order in which the samples are received by the multithreaded processing unit to render at least a portion of the scene (Abstract, lines 6-11; col. 24, lines 19-23).
5. As per claim 2, Heirich et al disclosed that threads are independently processed, and the threads will not be held up waiting for other threads to reach a certain point in

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their processing (col. 2, lines 30-37); processing a portion of the samples in the order in which the samples are received by the multithreaded processing unit (Abstract, lines 6-11; col. 24, lines 19-23).

6. As per claims 3-4, Heirich et al disclosed that portion of the samples includes samples within intersecting, coincident objects (col. 2, lines 44-48).

7. As per claims 29, 32 and 35, Heirich et al disclosed that the sample is at least one of higher-order surface, vertex, primitive, pixel and fragment (col. 3, lines 45-51)

Allowable Subject Matter

8. Claims 5-27 are allowable over the prior art of record.

9. The prior art of record further failed to teach or suggest either singularly or in combination a graphics processor for multithreaded execution of program instruction further comprising: "a scheduler configured to receive the program instructions, determine availability of source data, and schedule the program instructions for execution to process the samples in a second order independent of the first order; a resource tracking unit configured to track the availability of the source data; and a dispatcher configured to output the program instructions in the second order to be executed by the at least one multithreaded processing unit (as per claims 5 and 17); and further failed to disclose: "determining that first source data required to process the first program instruction are not available; determining that second source data required to process the second program instruction are available; and dispatching the second program instruction to process the second sample in the execution unit prior to

dispatching the first program instruction to process the first sample in the execution unit (as per claim 17). The totality of the combination of elements recited in the present claims invention were not found to be anticipated, suggested or made obvious by the prior art of record.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Dangelo (US Patent No. 5,946,487) taught an object oriented multi-media architecture.

Lawless et al (US Patent No. 5,818,469) taught graphics interface processing methodology in symmetric multiprocessing or distributed network environment.

Sowizral et al (US Patent No. 6,765,571) taught a using a master controller to manage threads and resources for scene-based rendering.

Wilt et al (US Pub. No. 2003/ 0140179) taught a method and system for managing computational resource of a coprocessor in a computer system.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mackly Monestime whose telephone number is (703) 305-3855. The examiner can normally be reached on Monday to Thursday from 7:30 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bella Matthew, can be reached on (703) 308-6829.

Any response to this action should be mailed to:

Commissioner of Patent and Trademarks

Washington, D.C. 20231

or faxed to:

(703) 872-9314 (for Technology Center 2600 only)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive,

Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

Mackly Monestime

Patent Examiner



MATTHEW C. BELLA
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600

February 3, 2005